

Date: Tue, 5 Apr 94 04:30:28 PDT  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #82  
To: Ham-Space

Ham-Space Digest                      Tue, 5 Apr 94                      Volume 94 : Issue    82

Today's Topics:

                    ARLK013 Keplerian data  
            Az/El Rotator suggestions wanted (2 msgs)  
            HELP: My Satellite Tracking Program Won't Work  
                    STS-59 SAREX Mission Delay

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>  
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

-----  
Date: Mon, 4 Apr 1994 16:07:45 -0600  
From: ihnp4.ucsd.edu!usc!yeshua.marcam.com!zip.eecs.umich.edu!  
newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!ve6mgs!usenet@network.ucsd.edu  
Subject: ARLK013 Keplerian data  
To: ham-space@ucsd.edu

SB KEP @ ARL \$ARLK013  
ARLK013 Keplerian data

ZCZC SK80  
QST de W1AW  
Keplerian Bulletin 13    ARLK013

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Date: 4 Apr 1994 17:22:11 -0500  
From: ihnp4.ucsd.edu!swrinde!gatech!howland.reston.ans.net!torn!nott!bnrgate!  
corpgate!crchh327.bnr.ca!debaker@network.ucsd.edu  
Subject: Az/El Rotator suggestions wanted

To: ham-space@ucsd.edu

Hello,

I am looking for suggestions on homebrewed or inexpensive az/el combos. I have looked at the kilobuck stuff from Yeasu and similiar makers, but am wondering if there are any kits or ideas for cheaper construction. I have read just about every satellite publication, so I have already seen a lot. I am trying to identify any designs that use inexpensive rotators (like the R/S TV rotator), and gear them down and perhaps modify them for greater than 360 degree rotation in order to get better weight loading and granularity in adjustment. If anyone knows of any ideas or plans (or knows about the R/S rotator), please let me know.

Thanks,

```
+-----+
| David E. Baker      Internet: debaker@bnr.ca (Richardson, TX, USA) |
| Callsign: AB5PI      Amateur Packet: AB5PI@N5AUX.#DFW.TX.USA.NA |
| My opinions do not necessarily reflect the opinions of my employer |
+-----+
```

-----  
Date: 4 Apr 1994 19:28 CDT  
From: ihnp4.ucsd.edu!galaxy.ucr.edu!library.ucla.edu!europa.eng.gtefsd.com!  
howland.reston.ans.net!cs.utexas.edu!bcm!news.tamu.edu!zeus.tamu.edu!  
tskloss@network.ucsd.edu  
Subject: Az/El Rotator suggestions wanted  
To: ham-space@ucsd.edu

In article <2nq3uj\$4rf@crchh7b0.bnr.ca>, debaker@bnr.ca (David Baker) writes...  
>If anyone knows of any ideas or plans (or knows about the R/S rotator),  
>please let me know.

I've been thinking of a low cost oscar rotator assembly myself. I have found a rotator sold at Wal-Mart that is a copy of a ham-type rotator. It is designed for light duty (like the RS one) and costs \$60 new. It features over the RS model a pass-thru mast design so it can be used vertically or horizontally! The gears are metal and the rotator controller is silent, as opposed to the grinder noises that emanate from the RS controller. Two of them make a good combination, and as soon as I get all-mode receivers...

-tim KC5DNA

-----  
Date: 3 Apr 1994 12:54:03 -0700

From: ihnp4.ucsd.edu!swrinde!sgiblab!barrnet.net!nntp.crl.com!not-for-mail@network.ucsd.edu  
Subject: HELP: My Satellite Tracking Program Won't Work  
To: ham-space@ucsd.edu

Hello,

I downloaded the program sattrack for my UNIX box at home and compiled it under linux. Everything went okay until I tried the program. The program kept on telling me that the satellites have "crashed already".

I tried A0-21, Mir and Oscar 13, they all gave me the same result, and I know, for a fact, that the satellites have not been crashed :-).

Please help me, thanks in advance.

73 de KE6BCU, Benjie

-----here are the scripts I used and the results I got back-----

Here are the lines I used for A0-21:

A0-21

```
1 21087U 91006A 94069.83595116 .000000094 00000-0 82657-4 0 4439
2 21087 82.9370 215.4726 0036191 0.5572 359.5617 13.74535665156075
```

Here is the line I used for Sunnyvale CA in the sites.dat file

```
Sunnyvale CA      37.283333 122.200000 50.0
```

And here is what I got from the program, running "sattrack -v"

```
wales{benjie}41: sattrack -v
```

SatTrack V1.0

```
Ground station   :      Sunnyvale CA
Satellite        :      A0-21
Element set      :      tle
Element set type :      NASA
Time zone        :      PST (-8)
Duration         :      5.0 d
Min elevation    :      48.0 deg
```

```
Ground station   < Sunnyvale CA> : Sunnyvale CA
```

Ground station : Sunnyvale CA  
Latitude : 1.000000 deg N  
Longitude : 48.000000 deg W  
Altitude : -49.000000 m

Satellite name < A0-21> : A0-21  
Two-line elements < tle> : tle

A0-21

1 21087U 91006A 94069.83595116 .00000094 00000-0 82657-4 0 4439  
2 21087 82.9370 215.4726 0036191 0.5572 359.5617 13.74535665156075

Satellite name : A0-21  
Satellite number : 21087  
Element set : 443  
Epoch : 94008.000000000 d 08-01-94 00:00:00.000 UTC  
Mean anomaly : 4.000000000 deg  
Arg of perigee : 0.000000000 deg  
RAAN : 4.000000000 deg  
Inclination : 3.000000000 deg  
Eccentricity : 0.003619100  
Mean motion : 8.000000000 rev/d  
Decay rate : 8.000000000 rev/d^2  
Orbit : 15607

Display Prediction Restart Quit <D> ? d

SatTrack

KE6BCU

A0-21 TRACKING MONITOR

Ground Stn : Sunnyvale CA Date: \_\_-\_\_-\_\_ Radio Beacon : 146.000 MHz  
Satellite : A0-21 Day : \_\_\_\_ Doppler Shift: -\_\_\_.\_\_\_\_ kHz  
Inclination: 3.000 deg UTC : \_\_:\_\_:\_\_ Path Loss : \_\_\_\_\_.\_\_\_\_ dB  
Orbit : \_\_\_\_\_.\_\_\_\_ % PST : \_\_:\_\_:\_\_ Phase (0-256): \_\_\_\_\_.\_\_\_\_  
Sun Azi/Ele: \_\_\_\_\_.\_\_\_\_ deg Mode (ABJLS): \_\_

Azimuth : \_\_\_\_\_.\_\_\_\_ deg Latitude N : -\_\_\_.\_\_\_\_ deg  
Elevation : -\_\_\_.\_\_\_\_ deg Longitude W : -\_\_\_\_\_.\_\_\_\_ deg  
Range : \_\_\_\_\_.\_\_\_\_ km Height : \_\_\_\_\_.\_\_\_\_ km  
Range Rate: -\_\_\_.\_\_\_\_ km/s Velocity : \_\_\_\_\_.\_\_\_\_ km/s

State Vector X: -\_\_\_\_\_.\_\_\_\_ km Y: -\_\_\_\_\_.\_\_\_\_ km Z: -\_\_\_\_\_.\_\_\_\_ km  
VX: -\_\_\_\_\_.\_\_\_\_ km/s Y: -\_\_\_\_\_.\_\_\_\_ km/s Z: -\_\_\_\_\_.\_\_\_\_ km/s

Next AOS : \_\_\_\_/\_\_:\_\_:\_\_ PST AOS Azimuth : \_\_\_\_\_.\_\_\_\_ deg \_  
Duration : \_\_\_\_/\_\_:\_\_:\_\_ MEL Azimuth : \_\_\_\_\_.\_\_\_\_ deg \_  
Next LOS : \_\_\_\_/\_\_:\_\_:\_\_ PST LOS Azimuth : \_\_\_\_\_.\_\_\_\_ deg \_

Countdown : \_\_\_/\_\_:\_\_:\_\_ Max Elevation: \_\_.\_\_\_\_ deg

Satellite has crashed already!

--

Benjie Chen benjie@hh.sbay.org benjie@wales.sbay.org  
KE6BCU@NOARY.#NOCAL.CA.USA.NOAM KE6BCU on the air / 147.315 +.600 p1151.4  
Join Internet Amateur Mathematics Society. Email listserv@hh.sbay.org with  
"FAQ iams" in the body of the message.

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Date: Mon, 4 Apr 1994 19:32:05 -0600  
From: ihnp4.ucsd.edu!usc!yeshua.marcam.com!zip.eecs.umich.edu!  
newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!ve6mgs!usenet@network.ucsd.edu  
Subject: STS-59 SAREX Mission Delay  
To: ham-space@ucsd.edu

SB SAREX @ AMSAT \$STS-59.001  
STS-59 Mission Delay

The STS-59 SAREX mission has been delayed 24 hrs due to some extra inspections  
that need to be performed at the launch site. Tentative launch will be on  
April 8 at 12:07 UTC.

A new set of Keplerian Elements will be provided in the near future.

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

/EX

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Date: (null)  
From: (null)  
SB KEP ARL ARLK013  
ARLK013 Keplerian data

Thanks to NASA, AMSAT and N3FKV for the following Keplerian data.

Decode 2-line elsets with the following key:  
1 AAAAAU 00 0 0 BBBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ  
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ  
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN  
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

A0-10

1 14129U 83058 B 94090.04857020 -.000000126 10000-3 0 2726  
2 14129 27.1828 334.6164 6021586 166.4731 222.3171 2.05878019 53208  
RS-10/11  
1 18129U 87054 A 94087.86953292 0.000000048 35789-4 0 8858  
2 18129 82.9247 28.2040 0010048 247.5026 112.5060 13.72333957338899  
UO-11  
1 14781U 84021 B 94088.54614116 0.000000310 60435-4 0 6771  
2 14781 97.7907 106.9891 0011724 159.5745 200.5932 14.69179967538610  
RS-12/13  
1 21089U 91007 A 94087.91832396 0.000000073 62203-4 0 6753  
2 21089 82.9180 70.9759 0029421 335.5442 24.4319 13.74038100157622  
AO-13  
1 19216U 88051 B 94089.57476926 -.000000405 10000-4 0 8978  
2 19216 57.8673 260.4952 7210521 338.0957 2.2906 2.09726187 12866  
UO-14  
1 20437U 90005 B 94089.78002368 0.000000055 38442-4 0 9774  
2 20437 98.5902 175.6151 0011994 63.2614 296.9794 14.29833748218380  
AO-16  
1 20439U 90005 D 94089.20880979 0.000000052 37099-4 0 7777  
2 20439 98.6002 176.2024 0012329 65.1942 295.0533 14.29888159218318  
DO-17  
1 20440U 90005 E 94089.24080620 0.000000063 41255-4 0 7768  
2 20440 98.5996 176.5305 0012438 64.3153 295.9310 14.30027317218339  
WO-18  
1 20441U 90005 F 94090.19431294 0.000000051 36697-4 0 7785  
2 20441 98.6012 177.4806 0013046 61.5324 298.7177 14.30002526218473  
LO-19  
1 20442U 90005 G 94089.26815097 0.000000060 40132-4 0 7766  
2 20442 98.6013 176.8020 0013338 63.8292 296.4260 14.30097329218359  
FO-20  
1 20480U 90013 C 94089.46791516 -.000000026 82466-5 0 6723  
2 20480 99.0274 256.2045 0541263 157.7469 204.8111 12.83224806194031  
AO-21  
1 21087U 91006 A 94090.36347229 0.000000093 82657-4 0 4495  
2 21087 82.9445 200.2890 0034231 302.9738 56.8128 13.74536481158891  
UO-22  
1 21575U 91050 B 94088.19621400 0.000000082 42436-4 0 4781  
2 21575 98.4399 164.2896 0007602 162.2933 197.8526 14.36902851141598  
KO-23  
1 22077U 92052 B 94089.40023487 -.000000037 10000-3 0 3734  
2 22077 66.0807 84.9415 0012132 306.9711 53.0198 12.86285590 76650  
KO-25  
1 22830U 93061 H 94089.19391177 0.000000061 41952-4 0 2772  
2 22830 98.5601 163.8935 0012606 49.5068 310.7222 14.28043381 26423  
IO-26  
1 22826U 93061 D 94090.21670618 0.000000050 37923-4 0 2740  
2 22826 98.6600 166.8192 0010132 76.2498 283.9812 14.27718516 26561  
AO-27

1	22825U	93061	C	94090.23004933	0.000000064		43978-4	0	2744
2	22825	98.6599		166.8062	0009628	75.4070	284.8171	14.27615820	26560
PoSat									
1	22829U	93061	G	94089.68812903	0.000000066		44108-4	0	2679
2	22829	98.6555		166.3095	0011064	65.4928	294.7409	14.28014942	26490
STS-59									
1	99959U			94097.74947238	0.00221188		11303-3	0	76
2	99959	57.0053		276.3038	0009259	269.9963	90.0094	16.19806752	53
Mir									
1	16609U	86017	A	94090.25081547	0.00008348		11343-3	0	5496
2	16609	51.6462		216.9197	0015558	91.3363	268.9434	15.58441517493803	

Keplerian bulletins are transmitted twice weekly from W1AW.  
 The next scheduled transmission of these data will be Tuesday,  
 April 5, 1994, at 2330z on Baudot and AMTOR.  
 NNNN  
 /EX

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 End of Ham-Space Digest V94 #82  
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